

REMARKS

Claims 22-35 stand rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement. The Examiner finds the claims contain subject matter which was not described in the specification in a way to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention. In particular, the recitation of “first and second materials comprising different grades of a base material” in claim 22 has no support in the specification. The claims also stand rejected under the second paragraph of §112 as being indefinite. The Examiner finds unclear what the limitation “different grades of base material” encompasses. In addition, the Examiner finds that, while claim 24 recites two different treatment processes, claim 25 recites that both the first and second steel components are treated by carburization. The Examiner finds these two recitations contradictory.

Claim 22 has been amended to eliminate the phrase “different grades of a base material”. Claim 25 has been amended to depend from claim 22 thus eliminating any apparent contradiction.

Claims 22-23 and 26-29 stand rejected under 35 USC §102(b) as anticipated by Quigley (U.S. 6,575,279). Quigley is cited as disclosing a no-back device (Fig. 1) comprising a plurality of ratchet members (22) connectable to a rotating member, pawls (25), interlocking means (40), projections and indentations (Fig. 3, elements 40,41). Regarding the limitation that “ratchets/pawls members are formed from respective materials having different chemical and/or physical properties”, the Examiner finds the prior art discloses discrete members that would inherently exhibit distinct properties that yield different physical grades.

This rejection is respectfully traversed in view of the amendments to independent claim 22 and the comments which follow. Claim 22 has been amended to incorporate the embodiments of claims 23 and 32 (which claims have now been cancelled). Thus, amended claim 22 recites that the first and second ratchet members are respectively formed from different steel materials. In addition, amended claim 22

now recites that “the first ratchet member is angularly offset from the second ratchet member in the direction of rotation such that only one of said ratchet members is initially engageable by said pawl member”. As indicated, this added limitation is taken from claim 32, which stands rejected under 35 USC §103(a) as being unpatentable over Quigley ‘279 in view of Chiang (U.S. 5,921,363). In this rejection, the Examiner has noted that Quigley does not teach having components of different sizes or offset from one another. However, the Examiner cites Chiang as disclosing a free wheel device comprising ratchet members of different sizes and offset from one another, the Examiner concluding that it would have been obvious to a person skilled in the art to apply the above mentioned teachings of Chiang in the device of Quigley to prolong the life of the clutch.

This rejection is respectfully traversed. The free wheel clutch of Chiang utilizes only a **single** ratchet member (131) in the form of a ratchet ring with which two sets of pawl members (14) are engageable, the sets of pawl members designed so as to operatively engage the ratchet ring at different angular positions. The construction of Chiang is significantly different from that of the subject invention as recited in amended claim 22. Chiang discloses only one ratchet member. Because Chiang has only one ratchet member, it can neither include nor does the disclosure suggest the feature now claimed that the ratchet members are of different steel materials. In addition, because Chiang includes only a single ratchet member, it does not teach or suggest the feature that the first and second ratchet members are angularly offset from one another in the direction of rotation such that only one of the ratchet members is initially engageable by the pawl member. This feature is described in detail in the paragraph beginning in line 5 on page 9 of the specification. It is important in that it results, in normal use, in one of the ratchet members being maintained in a full unworn working condition so that, in the event of failure of the other ratchet member, the one which has been maintained in an unworn working condition can become operative to avoid total failure of the no-back device. In this regard, it is important to note that the purpose of the invention is to provide failure redundancy, not to provide an arrangement of increased working life as suggested by the Examiner. Such failure redundancy, through the use of two ratchet

members only one of which is initially engageable by the pawl member, is not present in Chiang.

Applicant also wishes to note that the Examiner may be interpreting the pawls of Chiang as constituting the ratchet members of the subject invention. If so, this interpretation appears to be incorrect, given the claims specifically recite the provision of pawl members. However, even if this interpretation were to be accepted, Chiang would still not disclose the failure redundancy of the claimed invention as both sets of pawls in Chiang are engageable with the ratchet member from the outset. Therefore, in use, all of the pawls and the ratchet member are subject to wear. In the event of excessive wear or failure, there is no unworn component available to provide failure redundancy as in the present invention.

Claim 24 stands rejected under 35 USC §103(a) as unpatentable over Quigley '279 in view of Costin et al (U.S. 6,338,403). Costin is cited for its disclosure of a conventional one-way drive using members treated by different treatment methods (e.g. coatings). The Examiner concludes that it would have been obvious to a person skilled in the art to use different materials for the components of the no-back device of Quigley to compensate for the material deficiencies of another.

This rejection is respectfully traversed for the reason that clearly absent from the combination are first and second ratchet members angularly offset from one another such that only one is officially engageable by a pawl member, as now recited in amended claim 22 from which claim 24 depends.

Claim 30 stands rejected under 35 USC §103(a) as unpatentable over Quigley in view of Fitz (U.S. 5,806,643). Fitz is cited for its disclosure of a one-way drive using members made from different materials. The Examiner finds it would have been obvious to use different materials for the components of the no-back device of Quigley to compensate for the material deficiencies of the other.

This rejection is also respectfully traversed for the reasons set forth above with respect to claim 24.

Claim 31 stands rejected under 35 USC §103(a) as unpatentable over the combination of Quigley and Fitz and further in view of Chiang. Chiang is cited for its

alleged disclosure of a free wheel device comprising ratchet members of different sizes and offset from one another. The Examiner concludes that it would have been obvious to apply the teachings of Chiang into the device of Quigley/Fitz to prolong the life of the clutch.

This rejection is respectfully traversed for the reasons set forth above with respect to claims 24 and 30.

The rejection of claim 32 has been discussed above as a result of the incorporation of the subject matter of claim 32 into amended claim 22. Thus, this rejection is respectfully traversed.

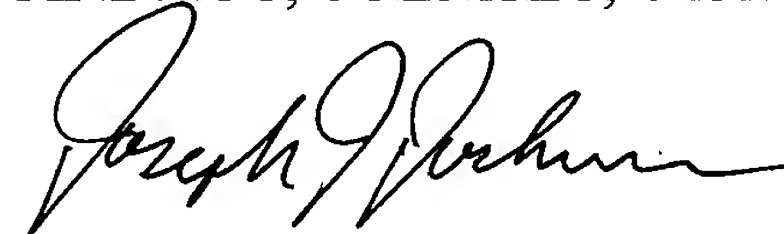
Claims 33-35 stand rejected under 35 USC §103(a) as unpatentable over the Quigley/Chiang combination as applied to claim 32, and further in view of Yoshiie et al (U.S. 6,889,809). Yoshiie is cited for disclosing a one-way clutch having a strain gauge (80) for controlling the device by means of a controller/switch (14). The Examiner finds that it would have been obvious to use the sensing/switch means of Yoshiie in the device of Quigley/Chiang to accurately monitor and control the parameters of the device.

This rejection is respectfully traversed. Claims 33-35 have been amended to depend from amended claim 22 and are believed to be allowable along with claim 22 for the reasons set forth above.

Claims 22, 24-31 and 33-35 are now believed to be in condition for allowance and further favorable action is respectfully requested.

Respectfully submitted,

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